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Communications.

AN INTESTINO-VAGINAL FISTULA.

By G. F. Witter, M. D.
Of Grand Rapids, Wis.

I take the opportunity to report the following, in order that it may come to the notice of both those, who in their extensive knowledge and experience have met with similar cases, and are prepared to offer valuble light to the profession, in reference to the treatment—as well as to those who, like myself, have never met a case of the kind before, and are therefore compelled to adopt a treatment peculiar to itself.

May 16. Was summoned in haste to see the only child (a girl) of J. F. S., æt. seven months. The pinched features and sallow complexion gave out anything but a favorable impression of the sequel of the disease which the parents were pleased to call canker, and which for months previous had existed in the form of *aphthea*, and seemed to have traveled the whole length of the *primæviæ*, evidently involving the structure in its pathway, as had been frequently evinced by muco-purulent evacuation. At this time there had been an evacuation from the rectum into the vaginal passage, which excited no little solicitation and anxiety. It was not until I saw the passage of the evacuation myself, that I was without doubt concerning this new and unnatural opening into the vagina. Upon examination, however, it was ascertained that there had been actual ulceration through both intestinal and vaginal walls. The opening thus formed was quite small, there being *tormina* and *tenesmus* during each evacuation. Urine scanty and highly colored, together with the general prostration of the whole system. There are, perhaps, few questions in surgery, which afford a better test of judgment, experience and decision, than those concerning such cases as the one I now report. I confess that I was much at a loss what course of treatment to adopt in this case. Positive directions were given, however, for a wet nurse to be procured to take the place of the mother, when milk was found to be almost entirely destitute of nutriment, and who had suffered for a long time previous with stomatitis, and whose general health was quite precarious. The next, and by no means the least indication was yet to be secured, viz., to stop and keep stopped, the unnatural passage into the vagina. One of the most important elements in the successful treatment of such cases is to be found in the great principles of rest, as carried out both by medicine and an apparatus which will perfectly retain the parts in position, and at the same time not interfere with the natural exit of urine. To secure the former, an enema was ordered to be had once in three hours *per anum*, consisting of one-half ounce of the following preparation:

℞.	Opii pulv.,	gr. ix
	Gum. myrrhæ,	ʒj
	Terebinthinæ venitæ,	ʒjss
	Ext. glycyrrhyzæ,	ʒss
	Ol. anisi,	
	Per sulph. ferri, aa	ʒj.
	Aquæ fontana,	Oj.
		Misce.

Boil for one hour.

The vagina was then packed with surgeon's lint, saturated with the following solution:

℞	Glycerinæ,	
	Ol. olivæ, aa,	ʒss
	Acid. carbolici,	gtt. x. M.

The lint thus saturated was applied, and kept in place by compress until after the passage of urine, when it was removed, and new dressings applied.

17th.—Symptoms improved; evacuations less frequent; *tormina* and *tenesmus* subsided; packing was removed but once during the night; child very languid; no evacuation through the recent passage; continuation of the above treatment was ordered.

19th.—Symptoms improved; evacuations from the bowels less frequent; urine very scanty; restlessness, and some fever. Treatment continued, together with the following:

℞ Gelsemii,
Tinct. aconiti, aa, gtt. v.
Spts. æth. nit., fʒj.
Syrupus,
Aqua fontana, aa, fʒiij.

Dose, ten drops every three hours.

20th.—All the symptoms much improved. This same treatment was continued, with gradual improvement of the symptoms, until the 26th, when the *enema* was discontinued, and one drachm of castor oil given, which operated quite naturally the same day.

26th.—The packing and all medicine were discontinued. The child began and continued to improve from the first. The packing acted like a charm in securing direct and speedy union, by which the fistulous opening, the bane of the profession, was avoided, and a fond mother's heart made glad.

OBSERVATIONS ON CEREBRO-SPINAL MENINGITIS.

By Fred. Horner, Jr., M. D.,
Of Salem, Va.

The writer has lately had opportunity to study this fatal disease, now prevalent at Petersburg, Richmond, and Martinsburg, Va. To a limited extent it may be considered epidemic. The *Petersburg Courier* says: "A disease of the brain, which so far, we learn, has baffled all medical skill, is prevailing in this city to an alarming extent. Chief among its symptoms is a sort of paralysis of the neck, by which the head is forcibly drawn back, and remains in that position until death ensues to relieve the sufferer."

The *Winchester Times* reports: "Cerebro spinal meningitis, or spotted fever, is the name of the disease which is scourging Martinsburg. It is not contagious, but an epidemic disease, and its prolific cause is filth and stagnant water."

The *Virginia Clinical Record*, published in Richmond, says of it: "Many of the mild symptoms of this dreadful disease are wanting in the more serious cases. It is generally ushered in by slight fever, with vomiting; sometimes with spasms in young children, and most generally with soreness and contraction of the muscles of the back of the neck. The brain, in the majority of cases, remains unimpaired, and the pulse and temperature nearly normal. Both diarrhœa and constipation are seen in different cases, and in some the appetite continues to be good. After ten days or two weeks, the retraction of the head begins to diminish, and the other symptoms to disappear, until convalescence is fully established. There is a tendency to relapses, which have proved more grave than the original attack. These are the general symptoms that have characterized a large majority of the cases in the city of Richmond; but there in some places all of the worst features have prevailed, and a large percentage of these have died. In one case, a post-mortem disclosed pus in the meninges of the brain and spinal cord, with clots of blood scattered thickly over the posterior surface of the brain."

The mortality has been greatest among children and the operatives of the tobacco and cotton-factories of Petersburg. This class are poor, and were destitute, in many instances during the past spring, of suitable food, clothing, and shelter. I was informed in Richmond "there had been no uniform line of treatment observed, but blisters and purgation to the neck, with large doses of quinine, have been used a good deal. Four-fifths of the cases recover under any and all kinds of treatment. There is observed at this time a tendency, in all disturbances of the system, to wear the livery of the prevailing epidemic, just as we see in other diseases. The least fever is attended now with serious nervous derangement, culminating often in open spasms, or in great local pains. Gastric irritation, or sore throat, have occasioned alarming reflex actions, terrifying the patient and his friends for fear of the spotted fever."

The above details, which have been quoted from various sources, are worthy of careful consideration, in order to determine the cause, the pathology, and the treatment of the prevailing epidemic.

Professor Alfred Stille has written an admirable treatise on the subject. He calls the disease Epidemic Meningitis. Dr. Liddell's article in the *American Journal of the*

Medical Sciences is also valuable. Drs. Benjamin Rush and Wood have described it.

The writer, through the columns of the REPORTER, several years ago, asserted this disease to be primarily caused by neglect of hygiene, blood poisoning, and atmospheric changes, occurring often among persons in the very bloom of youth and early manhood, in places crowded with a filthy and poor population, the disease sometimes spreading to physicians, nurses, and other attendants upon the sick.

The symptoms justify the opinion of an able author, that "in our present knowledge of the nature of the anatomical lesion they may be attributed to the pressure which the congestion, effusion, or exudation exerts upon the origin of the pneumogastric nerve, whose function is to associate the actions of the lungs, the heart, and the stomach."

As to treatment, the value of the prompt and energetic use of anodynes, particularly opium, which is an American remedy, is unquestioned. Besides its stimulant properties, it tends to relieve pain and remove delirium and stupor. Aided by other medicines of this class, with frictions to the surface of turpentine, brandy, etc., the spasms subside, the skin grows warmer, the pulse fuller, and the entire condition becomes more hopeful.

Regarded as a zymotic, or blood disease, the meningial lesion is an accidental, morbid element, dangerous, of course, to life, because of the depressing influence exerted upon the vital and nerve forces. Hence the efforts of the physician should be to maintain the latter by supporting the strength by means of appropriate stimuli, of food, medicine, and absolute rest, until the system has had time to react. Especially is this rule applicable at this time, when the habits of our people tend either to induce a state of excitement or depression, which the practitioner is so frequently called upon to correct.

HOSPITAL REPORTS.

UNIVERSITY OF PENNSYLVANIA.

Service of J. E. GARRETSON, M. D., Clinical Lecturer on Surgical Diseases of the Mouth.

May 6, 1871.

[REPORTED BY DE F. WILLARD, M. D.]

Aphthæ.

GENTLEMEN: Here is a patient who presents himself with an ulcer upon the mucous membrane lining his mouth, which he states has existed for a considerable period of time. Now, what is it? It is evidently what is termed an aphthous sore. But what are aphthæ? The books are as indistinct upon this subject as they are upon that of epulis; and if you recall my remarks when we were treating that subject, you will remember I told you that a careful study of their various chapters and descriptions would probably confuse the whole subject in your minds (*vide* REPORTER, Aug. 13, 1870).

In regard to aphthæ, I believe this confusion is occasioned by the attempt of authors to classify different pathological conditions under one head, which is not in itself sufficiently expressive. There are two Greek words from which it might be derived; one, ἅπτω, "to bind to" or "to fasten upon," the other, ἄπτω, "to set on fire," both being spelled the same; and it may be possible that this has been the cause of the difficulty, writers selecting one or the other of these words as the basis of their classification.

There are certainly ulcerations which will furnish a most congenial soil for that most troublesome fungus—the oidium—which will "fasten upon" and "bind itself to" these sores most determinedly, while others will most certainly be characterized by a sensation which will not be inaptly likened to a "fire." Now the subject of aphthous ulcerations is one to which I have given much thought and attention, and I may be pardoned if I spend a few moments in giving you my views, which, although they differ somewhat from those of many writers, yet I would say that they have not been hastily formed or carelessly elaborated. In speaking to you, I may be excused if I quote somewhat from my book on "Oral Surgery," since I may thus be able to present the views more concisely and rapidly in the short space of time which is alloted to our purpose this morning. I believe that the term Aphthæ cannot be applied to any one form of ulceration, but is a term applicable to a *class of sores* which may be of many species; and thus we may explain the various views regarding the presence of fungus, exudation, ulceration, etc. I cannot distinguish it as a special disease. I cannot explain it by the presence merely of a parasite, for the fungus, oidium albicans, is found quite universally, and is not a disease, nor the expression of a disease. It is merely a fungus, here finding its proper conditions of development—as the mistletoe, alighting upon an appropriate woody bark, fastens itself in position and grows to its allotted size. The oidium would have developed as well had he found a habitat in any other warm, moist soil. Aphthæ, then, is not caused by the fungus, but the fungus is here because the surface is ulcerated from a general syztemic cause, and its spore has found a resting-place where the life force of the part is not sufficient to cast it off before a foothold is obtained.

An aphthous patch, then, is "a degenerate

sore, to be seen, under certain circumstances, upon the mucous surfaces of the mouth, the fauces, the œsophagus, and, quite likely, upon any part of the alimentary canal, and perhaps as well the respiratory tract. The most common seat of this patch is the uvula; next, the lower lip; next, the tongue. The sore varies in size, from the smallest point to a confluent mass, which may cover a large surface; looks pasty and exudative; is generally oblong in shape; and varies in color from the misty white of hoar-frost to the dirty yellow of scrofulous pus. As most frequently seen, such a patch is one, perhaps, of several similar sores." This is of course a typical case; the varieties will be numerous.

Under the class Aphthæ we shall include canker, thrush, follicular, inflammation, cancrum oris, and gangrene oris, all species of a cancroid class.

"Thrush, or muguet, one of the species, is an erythematous inflammation, degenerating after a few days into a condition of curdy exudation. The inflamed surface, after a longer or shorter time, presents small white spots, which coalesce, forming the exudate patches. These patches vary in color, and as they remain moist and clear, may be considered with least apprehension, but if they grow dry and brown, may be esteemed possessed of dangerous import."

Dissections of the cadaver have exhibited aphthæ not only upon the œsophageal mucous membrane, but also in other parts of the alimentary canal. They have not as yet, so far as I am aware, been met with upon the respiratory tract, but there is no good reason why they should not have here a like existence.

In an acute attack of thrush, the mouth is hot, and the general condition feverish. Milder cases, or those of easier progress, seem —so far as any observable constitutional sympathy is concerned—to have alone a local signification. But if thrush is a distinct disease, could it be possessed of a double signification? Could it at one time be simply local, at another systemic? Thrush is common to children prematurely born, or nursed by unhealthy women. It belongs to hot, moist climates, to the situations of uncleanly hospitals; in fact, to any and every condition deemed to be depressive to the life force. It is, in short, a systemic, adynamic expression, seated in a mucous surface. That it differs from carbuncle, or cancrum oris, is not the case in fact, but only in degree. It is, in other words, one expression of a common condition—a species, and not a class.

Follicular inflammation—another form of stomatitis very likely to be asthenic—is a term used to signify that the abnormal vascular change is seated in the mucous crypts or follicles. In passing the finger over a surface so inflamed, a studded irregularity, produced by the engorgement of the glands, is plainly evident. As such inflammation progresses, the bodies become recognizable by the eye as papillary eminences standing out from an erythematic surface. In color they are of a varying red—such variations in shade expressing the constitutional conditions. Follicular inflammation terminates either by resolution or ulceration; when in the latter way, the follicles soften in the centre, suppurate, and have the bottom filled with a whitish, pasty mass. When in this condition, they are the aphthæ of M. Billard.

Follicular inflammation appears most frequently in the infant during the dentinal period,—an explanation existing in a quickly and easily recognized combination of a predisposition and an excitant. In its most simple form, that is when there is no marked dyscrasia, or when the excitant is not of sufficient intensity to irritate to any extent, the lancing of the gums or the application of cooling local remedies may be sufficient to combat or control the amount of manifestations. When, on the other hand, the conditions predisposing to the disease exist in a state of balance, as it were, with the natural resistive forces, the addition of a second depressant influence, as that resulting from the irritation of dental development, may very well be understood as giving the mastery to an agent or condition otherwise controlled or held fully in check. Thus we explain to ourselves the real and apparent connection of dental irritation with the aphthæ.

From a simple form, or the inflammation of isolated follicles, the condition in some ill states of the general system becomes confluent, such extreme form being most frequently noticed in the typhoid exanthems, or in destructive organic diseases. In confluent follicular inflammation, a prognosis can only be justly made, when every associate and collateral influence has been appreciated. The condition will nearly always be found an occasion for anxiety.

Cancrum oris, a species of stomatitis, generally accorded a special classification, differs in no wise from that just considered, except in being more localized, as if the force of the influence had concentrated rather than diffused itself. The complaint known as cancrum oris is an asthenic spreading ulcer. In appearance this ulcer differs from what has been given the special definition of aphthae by most writers, only in being more depraved and threatening. It has the same pasty bottom, of varying shades of white; the same association of pain; the same variation in persistence. Like other aphthæ, cancrum oris seems to be, and is associated with dyscrasis, appearing most commonly in the infants of ill-conditioned charities, in the ill-housed and poorly fed, having in all systemic associations the precise history of the species alluded to as thrush and glandular inflammation. This form of stomatitis, although confined to no exact locality, is yet most commonly met with on the cheeks or gums. It may commence with a phagedenic expression, and very quickly destroy the patient; or a slight vesicle or pustule may first appear to be followed by varying inflammatory associations, precisely

as though some local poison was the source of the trouble.

The history of cancrum oris differs from that of other cancroid affections alone in degree. This is fully proven in the fact that it is associated with the same causes; that any ordinary canker sore is capable of taking on an ulcerative action; that the fungus oidium is quite as common to the seat of this, as the other affection. In fact every analogy will demonstrate that the relation is like that which associates a phagedenic with the simple venereal sore, being the difference of degree and not of cause or character.

Gangrena oris—sloughing phagedæna—is another degree or species of the common class. It may commence as an acute inflammation quickly deteriorating, as a species of fatty degeneration of the epithelial tissue, as a sub-mucous effusion, or as an eschar which falls from its relations with a rapidity which leaves us at a loss for an explanation, except on the inference that the materies morbi have had the most special concentration. The eschar, formed sooner or later, is ashy in color, or a deadish brown, while the still living parts, particularly the external cheek, if this part should be the seat of the ulcer, has an erysipelatous blush—white, semi-livid and threatening in appearance. Gangrena oris is markedly a disease of the dentitional period occurring in ill-fed, ill-clothed, or ill-housed children, between the first and second dentitions. Most conspicuous is the constitutional nature of the affection.

It is, it seems to me, a general febrile or inflammatory disturbance concentrating its greatest force upon some part of the oral cavity, innited or directed without doubt by the irritability therein existing—proof of which inference lies in the fact that in nearly every case we find inflammatory complications, such associated inflammation being most frequently found in the lung tissue. I take it for granted that the oral concentration saves some other more important part. Gangrena oris, where it does not too quickly kill and separate its eschar, affords support to the parasitic fungi—the oidium albicans, as in the other forms of aphthæ being that most frequently met with. Oral gangrene varies, as would be inferred, in degree; thus commencing as a single canker sore, or epithelial degeneration, and terminating with no very serious result, it might be described as the follicular or other of the simple species. Concentrated or in its malignant form, it destroys life without affording the physician any extended chance to combat it. In healthy children this is very uncommon, the ordinary canker being generally the worst manifestation. In children exhausted under the exanthems, in those maltreated with mercury, or laboring under syphilitic degeneration, the marked or destructive type is exhibited.

The decomposition of mucus, or the debris remaining from the food, when lodged upon an aphthous sore, forms the best nidus for the development of fungi. It is, as it were, a soil, and it is undeniable, that epithelial scales, in varying states of abnormal degeneration, inspissated mucus, and particles of decomposed food are common to all such sores. Thus in sickly children the fungoid association is most common from the fact of the weakened energy of the parts afflicted, this favoring decomposition, and the retention of the debris in the cavity of the mouth, and consequently producing the required soil or habitat of the oidium, as alluded to.

In the foundling hospitals, where the sucking bottle is used, the spores of fungi find an easy passage to the mouth, being in this way located and developed. In the nursing infant of an uncleanly mother, the accumulation and retention of the milk will with favoring influences, quickly develop fungi. It is the fungus and not aphthæ that is contagious, as must be plainly seen, hence one can but wonder at the disputes of Guersant, Billard, Balleix and others.

Dewees thinks there is no difference between our "babies sore mouth" and the "muguet" of the French; save in the intensity, or in the depressing condition of surroundings. He believes the complaint to be associated with a disordered state of the stomach, and to be a symptomatic disease.

Among the symptoms he gives in addition to the white patches in the mouth looking like coagula of milk, drowsiness, and watery greenish acrid stools.

Aitken, Good, Jourdain, etc., all recognize the variation in the character of this disease, but I think the name should be extended to include all the diseases I have before mentioned.

In regard to prognosis, it will differ according to the various forms; the milder ones being harmless; the severer, almost inevitably fatal. The diagnosis will rest upon the symptoms I have enumerated.

The treatment should be addressed at once to the general constitutional disease which is present—since this is often the greatest cause of alarm. We must remove the cause if possible; but if this be syphilis, scrofula, etc., then the aphthae will be most difficult to cure. You will undoubtedly find that local applications have but little effect, and at last you will learn to rely on general treatment.

Should the bowels be costive, they should be opened by a saline cathartic, but if diarrhœa is present, then I think you will find the following combination of considerable use.

R.	Magnes. carb.	ʒss
	Hydrargi chlor. mitis,	gr. iv.
	Pulv. ipecac.	
	" opii aa	gr. ij.
	Ft. chart. No. xxiv.	M.

Sig. One every two hours until relieved.

The food should receive the most careful supervision, as should, also, the cleanliness of every thing in or about the child, even to he binder. If able to take food, strong,

liquid diet should be given; and if suckling, perhaps a new nurse will be required, a change, in fact, which will often be of wonderful benefit in advancing the cure.

Were this simply a local disease, we might expect much benefit from the local application of carbolic acid, etc., since this would most certainly exert its influence upon the oidium albicans, that fungus here formed. Sulphate of zinc, nitrate of silver, acid nitrate of mercury, etc., properly diluted, are of benefit locally.

When acute aphthæ as seen in cancrum oris and gangrene, is present, then we must meet it promptly, and ably. Quinine sulph. and tinct. ferri chlor. will be immediately required with wine or other stimulants.

Locally, I have found a solution of cupri. sulph. to be of the greatest benefit, used in the proportion of ten to thirty grains to the ounce of lard—but other astringents may be employed.

Gangrene is so rapid that it may produce extensive ravages, but our only hope is in entire and speedy support—iron, quinine, whiskey, beef tea, etc., being frely administered, while at the same time we circumscribe the action by sloughing out the tissue with caustic, either nitric acid, or the acid-nitrate of mercury, but do not use nitrate of silver. Pain must be quieted and all other symptoms appropriately treated.

[The man was then ordered to the seashore as much as possible during the summer months, with instruction to live in the open air, bathe freely, eat the most hearty food, drink milk and pay attention to every secretion and function. Ether was painted upon the patches, and a solution of sulphate of copper, twenty grains to the ounce, applied each succeeding day. Iron. quinine and strychnia were given internally.

DE F. W.

MEDICAL SOCIETIES.

OHIO STATE MEDICAL SOCIETY.

[REPORTED BY J. W. HADLOCK, M. D.]

Report on Physical and Vital Force.

By S. S. SCOVILL, M. D., Lebanon, Ohio.

Gentlemen of the Ohio State Medical Society:—An elaborated report upon a subject of such magnitude as the one assigned your committee, would occupy more time than is usually granted the special committees of this Society; a brief consideration of the questions involved is all that we can promise.

It will be our purpose to consider the Doctrine of the Correlation and Conservation of Force in its application to Physiology.

A brief history of the discoveries pertaining to the new philosophy, as it is sometimes called, may not be out of place; especially when we may recognize among the individuals who participated in the solution of the difficult problems, so many who are identified with the medical profession.

In looking back upon the past, we find no period when philosophers were satisfied, or united in their opinions respecting the nature of heat, phlogeston, and caloric, in their time whereby many regarded as real existences; but the great body of thinkers were suspicious of their equivocal character and hesitated in declaring them the true representatives of that something which effect matter called heat. To say the least: phlogeston and caloric had miserable lives, and some may predict a like fate to the great form which heat is now made to assume.

It appears that Galileo, Newton, Bacon, Locke, Liebnetz, Laplace, Des-Cortes, and others of their age had vivid conceptions of the intimate relation of the physical forces, and it may be shown that Des Cortes, respecting the vital forces, was sipping at the very fountain from which Huxley and Herbert Spencer have recently taken such copious draughts.

In speaking of the motion of the heart, Des Cortes says: "This motion which I have just explained, is *as much* the necessary result of the structure of the parts which one can see in the heart, and of the heart which one may feel there with one's fingers, and of the nature of the blood which can be experimentally explained as is that of a clock, of the force, the situation, and the figure, of its weights and of its wheels."

Again, in reference to the human organism, he remarks, "It is not necessary to conceive any other vegetative or sensitive soul, nor any other principal of motion, or life, than the blood and the spirits agitated by the fire, which burns continually in the heart, and which is nowise essentially different from all the fires which exist in inanimate bodies."

In their scientific labors, these men approached the very confines of the philosophy of to-day.

Count Rumford's experiments with heat, first published in 1798, utterly demolished the caloric theory, and gave to the world the first clear conception of heat as a mode of motion. Sir Humphrey Davy, who early abandoned the old theory, was cautious in adopting the new. But his genius and zeal for experimental philosophy soon led him to the views of Rumford. Nothwithstanding the brilliant achievements of these philosophers, scientific men generally, were slow to apprehend their great significance, and more than a third of a century elapsed before attention was fully directed, to the consideration of the important truths involved.

About the year 1842, Dr. R. Grove, Dr. Jule, Dr. J R. Mayer, Colding of Denmark, and Seguin of France, announced their views respecting the mutual relation of forces. In 1850, after assiduous labor, Dr. Jule completed the discovery respecting the mechanical equivalent of heat. Dr. Mayer, however, seems to have preceded Joule in all the principles connected with this law. Prof. Tyndall in reference to this matter, says: "As seer and generalizer, Mayer, in my opinion, stands first—as experimental philosopher, Jule."

Dr. Faraday, Prof. Helmholtz, and Prof. Liebig, also, were conspicuous in these discoveries pertaining to the forces; their views, however, were not announced quite as early as those of the other gentlemen named.

What are we to understand by the phrases correlation and conservation of forces?

In the introduction to a work published by Dr. Edward Youmans, may be found a clear and satisfactory answer to this question. This author says, "heat, light, electricity and magnetism are now no longer regarded as substantive and independent existences—subtile fluids with peculiar properties, but simply as modes of motion in ordinary matter; forms of energy which are capable of mutual conversion. Heat is a mode of energy manifested by certain effects. It may be transformed into electricity, which is another form of force producing different effects. Or the process may be reversed; the electricity disappearing, and the heat reappearing. Again mechanical motion, which is a motion of masses, may be transformed into heat or electricity, which is held to be a motion of the atoms of matter, while by a reverse process, the motion of atoms, that is, heat or electricity, may be turned back again into mechanical motion. Thus a portion of the heat generated in a locomotive is converted into the motion of the train, while by the application of the brakes the motion of the train is changed back again with the heat of friction.

These mutations are rigidly subject to the law of quantity. A given amount of one force, produces a definite quantity of another, so that power or energy, like matter, can neither be created or destroyed; though ever changing form, its total quantity in the universe remains constant and unalterable. Every manifestation of force, must have come from a pre-existing equivalent force, and must give rise to a subsequent and equal amount of some other force. When, therefore, a force or effect appears, we are not at liberty to assume that it was self-originated, or come from nothing; when it disappears, we are forbidden to conclude that it is annihilated; we must search and find whence it came, and whither it has gone; that is, what produced it, and what effect it has itself produced.

For a complete illustration and demonstration of the truth of the above, Grove and Tyndall should be consulted.

The law of the mechanical equivalent of heat has been so repeatedly demonstrated, that no philosopher now entertains a doubt respecting its truth. We find it stated thus: "A pound weight falling from a height of 772 feet will generate enough heat to raise the temperature of one pound of water one degree; or conversely, an amount of heat necessary to elevate a pound of water, one degree will raise a pound weight 772 feet.

Perhaps this law in its application to science, is of equal importance to any discoverey by Newton or Kepler.

The theory as to how heat operates a mode of motion, rests upon the existence of an ethereal substance, which, it is supposed, pervades all matter, surrounding or enveloping the atoms or molecules. Heat in a body becomes manifest in proportion to the degree of motion induced in the atoms or molecules. In the combination of any substance, we have an exhibition of intense molecular motion. And if this molecular or heat-motion is communicated to water, the atoms will become so excited as to pass away as steam, and if properly collected, may be made to produce powerful mechanical force or motion.

In passing to the consideration of the relation which is claimed exists between the physical and vital forces, we find that Dr. Mayer was the first to make a clear and emphatic announcement, claiming the identity or at least the correlation of these forces. This was in the year 1845. Dr. William B. Carter, Professor Leibig, Prof. Joseph Henry of the Smithsonian Institute, and Prof. Laconte of the South Carolina College, followed in the advocacy of similar views. Carpeuter and Leibig may be regarded as pioneers in the new field of science. The views of the former were first published in 1850, and he, Dr. Carpenter, claims that the labors of Dr, Mayer were not then known to himself; this we believe is admitted. More recently, Professors Huxley and Herbert Spencer have become conspicuous, especially in the application, and in popularizing the "new views."

Dr. Mayer, in his first treatise, labors to show, that the changes in living organism, including plants, take place by forces acting from without. He also treats of motion, light, heat, and electricity, as produced by living bodies.

Dr. Carpenter, as announced in 1850, in a memoir entitled "The Mutual Relation of the Vital and Physical Forces" are substantially the same as those of Dr. Mayer. In 1864 he published several essays, in which he discussed the same subject. In an appended note he makes the acknowledgment that he has been profited by a memoir from Professor Laconte, published in *Silliman's American Journal* for November, 1859.

Dr. Carpenter, in one of his essays, makes use of a figure which will illustrate the relation which exists between the force or power, and the instrumental means through which the force or power operates. This is an important matter in considering the phenomena of force or motion. We give his language: If we inspect a cotton factory in full action, we find it to contain a vast number of machines, many of them but repetitions of one another, but many, too, presenting the most marked diversities in constructions, in operation, and in resultant products. We see, for example, that one is supplied with the raw material, which it cleans and dresses; that another receives the cotton thus prepared and "cards" it so as to lay its fibres in such an arrangement as may admit of its being spun; that another series it, taking up the products supplied by the carding machine, twists and draws it out in

threads of various degrees of finement; and that this thread, carried into a fourth set of machines, is woven into a fabric which may be either plain or variously figured, according to the construction of the loom. In every one of these dissimilar operations the *force* which is immediately concerned in bringing about the result, is one and the same; and the variety of its products is dependent solely upon the diversity of the material instruments through which it operates. Yet these arrangements, however skillfully devised, are utterly valueless without force, which bring them into play. All the elaborate mechanism, the triumph of human ingenuity in devising, and of skill in constructing, is as powerless as a corpse without the *vis viva* which alone can animate it. Here the Doctor, so far as it concerns the factory, would consider heat as the life power. And we shall see in another place, that he concludes that heat may be the force or *vis viva* of the human machine. In speaking of organism, he says: "While we look carefully into the question, however, we find that what the germ really supplies, is not the force, but the directing agency, thus rather resembling the control exercised by the superintendent builder, who is charged in working out the design of the architect, than the bodily force of the workman who labor under his guidance in the construction of the fabric. As we learn from an extensive survey of the phenomena of life, the actual constructive force is supplied by heat, the influence of which, upon the rate of growth, and development, both animal and vegetable, is so marked as to have universally attracted the attention of physiologists, who, however, have for the most part only recognized in it a vital stimulus, that calls for the latent power of the germ instead of looking upon it as itself furnishing the power that does the work."

In the application of this new doctrine respecting the forces, we find that it is made to embrace the operations of the intellectual faculties. Carpenter, in his "Physiology," discusses the matter at some length. Draper endorses the view that all mental manifestations can be made to correlate with the forces of organic or animal life. But no author, to our knowledge, has treated the subject with as much enthusiasm as Spencer. He not only extends the doctrine to the operations of the mind, but he gives it a universality that embraces all the relations and conditions of mind and matter in the universe. Whatever else may be said of his views, as contained in his "First Principles of Philosophy," they bear the marks of rare genius in the way of application. And we do not find him wanting in material facts. His education and associations as a physician gave his mind ample range for the collection of material, out of which he has reared a gigantic structure, the durability of which time must determine.

But it is not our purpose to examine the mental and moral phases of the question, and we pass to the consideration of the forces in their operations in connection with organic life.

Prof. Henry, in an article entitled "Meteorology in its connection with Agriculture," published in the "Patent Office Report" for 1857, discusses at some length the phenomena connected with both vegetable and animal life. As it regards the vital forces, his views accord in the main with those of Dr. Carpenter. The vital principle he considers to be that which *governs* or *directs* the forces. He says: "This" (the vital principle) "is certainly not a *force*, in the ordinary acceptation of the term, or in that in which we confine this expression to the attraction and repulsion with which material atoms appear to be primarily endowed. It does not act in accordance with the restriction and uniform laws which govern the forces of inert matter, but with forethought—making provision far in advance of a present condition for the future development of the organs of sight, of hearing, of reproduction, and of all varied parts which constitute the ingenious machinery for a living being. Matter without the vital influence may be compared in its condition to steam, which, undirected, is suffered to expend its power in producing mechanical effects on the air and other adjacent bodies, marked with no special indications of design, while matter under its influence may be likened to steam under the directing superintendence of an engineer, which is made to control complex machinery and to perform other work indicative of a directing intelligence. Vitality thus viewed, gives startling evidence of the immediate presence of a direct divine and spiritual essence, operating with the ordinary forces of Nature, but being in itself entirely distinct from them."

"This view," he continues, "of the subject is absolutely necessary in carrying out the mechanical theory of the equivalency of heat and the correlation of the ordinary physical forces. Among the latter, vitality has no place, and knows no subjection to the laws by which they are governed."

In an appendix to an article by the Rev. H. H. Higgins, found in the "Report of the Smithsonian Institute" for 1866, Professor Henry adheres substantially to his views, as contained in the article from which we have just quoted.

The operation of external forces in building up organic structures, may be shown in the growth or development of plants. Professor Henry discusses this matter with great clearness, and we regret that space will not allow us to give his views in full and in his own language.

A grain of corn placed in the ground and kept below a certain temperature, will not germinate. If any change takes place in the molecules of the starch and other matter of which the grain is composed, it is not of decay. And by this disintegration the compounds are sundered into those of a less complex character—to purely inorganic matter. But suppose the grain or kernel is so

conditioned that a certain amount of heat from the sun can penetrate the earth and warm the germ, soon a rootlet is shot downward, and a sprout shoots upward, both in search of something which the plant must have when the supply in the kernel is exhausted. What will become of the plant should the new supply not be found? Its growth ceases, and it falls back into decay. But it "seeks the light," and light it must have, especially the chemical rays. This chemical emanation or force from the sun decomposes the carbonic acid which has been absorbed by the water in the pores of the surface of the young leaves; the oxygen is liberated, and the carbon is absorbed to build up the woody structure of the plant.

When a plant or tree is burnt, the ashes, which is but a small part, represent that which was obtained from the earth; that consumed in combustion comes from the atmosphere.

In the evolution of the animal organism we may find substantially the same conditions, the forces concerned in the process being derived from without. In the development of the chick from the egg, heat is essential, though according to nature it is not derived immediately from the sun. Animal heat obtained from the parent, serves no better purpose in incubation than that derived directly from the sun, or from an oven, only so far as the mode of its application is better adjusted. And we might have stated, that in the germination and growth of plants, the "*source*" of the heat is a matter of no essential importance.

Heat induces motion—sensible motion in the embryo-cell and in the highly organized compounds, stored up in the egg, and in this manner evolution is initiated. What degree of motion, or *vis viva*, existed in the egg before being warmed by the parent may be difficult to determine. But that there must have been motion, beyond the molecular disturbance common to all matter, is evident from the fact that respiration or an interchange of oxygen and carbonic acid, is, to a limited extent, going on with the egg from the time with its contact with the external air. And when incubation has commenced, this respiratory action increases in proportion as the process of development advances; but with all this pre-existing motion, evolution would never take place in the absence of a certain quantity of heat-motion coming from without. And to withhold this heat or energizing influence, at any time before the chick emerges from the shell, so that it can take food and breathe freely, thus enabling to generate its own heat, would be to let it perish, just as the young plant would if the heat were withdrawn before it emerges from the ground in search of new supplies necessary to its life and further development.

The adjustment of heat during the process of incubation, directed in some manner by the instinct of the parent, is quite remarkable. With some fowls it may be noticed in the care taken to cover the eggs when they leave the nest, and in proportion as evolution advances, the circulation becoming more active in the new being, and respiration through the shell increasing, we find the parent less careful as to the amount of heat which she is to furnish her eggs.

That the animal organism is dependent upon forces from without, is evident from the fact that its capabilities for forces or power always bear an exact relation to the force-producing material taken into the system. And the same principle applies to a piece of human mechanism, the locomotive, for instance. Experiments, however, have shown that the machine man is so much superior in its adjustments for utilizing power, that four-and-a-half times more work can be done by it with the same amount of fuel than can be performed by the best furnished engine.

The matter which enters into the animal organism to form structures, is in a very unsuitable condition; and the higher the organism attains the more unstable the equilibrium becomes. We are forced to the conclusion that with the more stable compounds, whether organic or unorganic, there is constantly less molecular or contained motion, and as heat increases this motion we may understand how the stability of matter is affected by temperature, a most important consideration in all our investigations respecting animal life. As it regards inorganic bodies, the crystalloid form, which is due to a union or certain arrangement of the individual atoms, there is more stability; in the other, the colloid form, which is due to a union of groups of individual atoms, there is less stability. Perhaps all elementary bodies possess the quality of assuming active and passive conditions, which is owing to a difference in the arrangement of atoms or molecules, giving them different degrees of contained motion. Carbon in the form of diamond contains but little molecular motion, with feeble capacity for an increase of this motion, as proven by the difficulty encountered in its combustion, in the form of lamp-black, it must contain great motion from the fact of its ready ignition; under certain circumstances it ignites spontaneously. Phosphorous is changed from a highly active condition to one of passiveness by exposure to certain rays of the sun. When this allotrophism of bodies is understood, much that is now involved in mystery may be explained.

In all the nitrogenous compounds we find an unstable condition consequent upon their contained motion. It is found that when nitrogen combines with other elements, instead of giving out heat, it absorbs heat. This heat then seems locked up in the compound formed; and we may mention the fact that our explosive compounds are nitrogeneous. In the explosion of nitro-glycerine we may witness a most terrible display of heat-motion or decomposition taking place almost instantaneously.

In this proneness to decomposition of compounds, into which nitrogen enters largely, we have an explanation of the

unstable condition of the animal tissues, for the more essential compounds of all animals are nitrogeneous.

The relation of Heat to life is so intimate, that in our investigations we are compelled to recognize its importance at every step.

In the requirements of the human system for maintaining a uniform temperature, we have a striking exhibition of this relation. Dr. J. Davy, in his investigations respecting the temperature of the human body (Carpenter's Phys., ed. 1858, p. 407), examined 114 individuals of both sexes, of different ages, races and latitudes, and under different external temperatures, ranging from 60° to 82°. The average age of all examined was 27 years.

The variation of the temperature of the body, as the result showed, amounted to but 5½°. The highest temperature noted was 102°; the lowest 96.5°. This variation could in part be accounted for by the difference in the external temperature of the air, and individual peculiarities.

In diseases we may witness a departure from the usual standard, amounting to more than 40°. In tetanus, scarlatina, phthisis, puerperal fever, and typhus fever, we may have a temperature of the body ranging from 106° to 110°; while in asthma and cholera it may fall as low as 75°. With the latter disease, cases are recorded where the temperature was but 67°.

In diseases there seems to be a generalization between the temperature of the body and the rapidity of the pulse.

There is also another relation, which is better understood since thermometry has come in use, namely: between the temperature of the body in a given case of disease, and the mortality attending it. Very high or low temperature indicates nuschus.

In the experiment of M. Chossat upon starvation, it was found that certain birds which were deprived of food and drink, suffered a gradual diminution of temperature. In the course of four days the heat had diminished 4½°. During the fifth day, during which death took place, the temperature fell 25°, making a total loss of 29½°. It was found that 93 per cent. of the *fat* had disappeared, while the nervous centres lost comparatively nothing. Here, evidently, the heat was maintained at a gradually declining rate, until the combustible material was consumed, when the temperature suddenly fell, producing death.

The same gentleman shows that birds, when death is impending from starvation, may be revived by artificial heat, so as to take food and drink, which they could not do without this stimulus. Many upon which this experiment was tried entirely recovered. And some, it is said, that were dead to all appearances, were resuscitated.

The chemical theory of chlorification may be supported by a multiplication of facts to which we cannot refer. If heat in the animal system is essentially dependent upon nervous agency, to the exclusion of chemical action or changes in the arrangement of the elementary particles, then, says Prof. Liebig, "It means nothing else than to derive the presence of motion, the manifestation of force, from nothing."

Carpenter, in this connection, refers to vegetable heat, where the idea of nervous agency is totally excluded. Also the *post mortem* production of heat in the human subject. Dr. Bennett Dowler, of New Orleans, found that with certain subjects of yellow fever, the *post mortem* heat arose several degrees above the highest temperature during life. In one case mentioned, "the highest temperature during life in the axilla was 104°; ten minutes after death it was 109°; fifteen minutes afterwards it was 110°, in an incision in the thigh."

The temperature was noted with fifteen different subjects, in eight different regions at different times. The thigh gave the maximum, the brain the minimum; respectively 109° and 100.6°. In one subject, three hours after the removal of the viscera, a fresh incision in the thigh indicated a temperature of 110°

The heart also was very persistent in its manifestations of this molecular life.

If heat were essentially dependent upon nervous agency, we would expect the brain to indicate the highest temperature—certainly not the lowest. This *molecular life* continuing so long after *somatic death* is evidence of high muscular endowment. And it is but reasonable to suppose that the parts of the body which are expressly formed in all their minuteness for motion, would persist in exhibiting motion of some kind longer than parts formed and endowed for other purposes.

We cannot look to nervous agency for the origin of animal heat. The nervous tissue, doubtless, contributes its share to the general sum of heat, the same as all matter in the system susceptible to chemical changes.

That the amount of heat, especially in certain parts of the body, is influenced by nervous agency, cannot be denied; but perhaps only in proportion as an influence is exerted upon the circulation of the blood and other fluids.

As it regards vegetable heat, when nervous agency is out of the question, Professor Paine's experiments are interesting. (Draper's Phys., 7th edi., p. 479). In the examination of bodies of twenty trees, embracing eleven varieties, by boring holes into them, and inserting a thermometer into them, neatly adjusted, it was found that the temperature ranged from 48 to 68°.

While that of a dead tree, reflected as the standard of comparison, showed at the end of his observations, but 45°.

These experiments were conducted in a forest in New Jersey on the 9th of April, when some of the trees were in bloom; with others, the buds were but slightly swollen. There are two stages in the life of plants, when they exhibit high temperature's, namely:

During the germination of the seed and the functional activity of the flower. In the

malting or sprouting of barley, for instance, heat is evolved, and upon the same principle that it is with animals; oxygen disappearing, and carbonic acid being liberated. A mass of flowers, it is said, has raised the themometer from 60° to 121°.

Here the same interchange of gasses are carried on, with the temperature raising precisely in proportion to the amount of oxygen consumed.

Pursuing the relation of heat to animal life, we shall discover that there is with all organized beings a fixed relation between the temperature maintained and the capacity for respiration. In birds where we find the respiratory apparatus most perfect, the temperature of the body is oftenest so.

Draper in his Physiology, adduces satisfactory evidence of the truth of this relation, and in discussing the matter, remarks, "That since muscular motion implies destruction of muscular tissue by oxydation, and therefore, developing of heat, we should expect to find as is actually the case, that animals possessing the highest powers of locomotion, will possess, also, the highest temperature.

In tables of mortality we may trace distinctly the relation of heat to life. At the animal maximum and minimum of temperature, we find the greatest number of deaths, especially with infants and aged persons whose powers for adjusting the heat of the system are less perfect.

In the preface to his Animal Chemistry (edi. 1850), Prof. Leibig remarks: "The most beautiful and elevated problem for the human intellect—the discovery of the laws of vitality—cannot be resolved, nay, cannot even be imagined, without an accurate knowledge of chemical forces." As it regards gastric digestion, the more recent observations favor the idea that the process, at least so far as the change effected upon the food is concerned, is chemical.

And respecting nervous agency in connection with this function, the experiments of M. Bernard, Dr. Jno. Reed and Sir Benjamin Brodie prove that digestion is only influenced by the nerves. Did space permit, we might refer to experiments in producing artificial digestion, showing that the process can at least be well imitated.

In the case of absorption from the digestive cavities, must we look for some mysterious vital operation? Or does this function depend upon physical or chemical laws?

The opinion that absorption may be referred to osmotic action is being strengthened in proportion as this physio-chemical force becomes better understood.

Prof. Lehmann ("Lehmann's Physiological Chemistry," vol. ii. p. 273) advances the opinion that "when a full investigation is had respecting the laws governing endosmosis, we will be able to trace not only the normal but the abnormal circulation of matter in the body to purely mechanical conditions."

Experiments by Joseph Jones ("Carpenter's Physiology," p. 139), student of medicine in the University of Pennsylvania, with solutions of various substances, show that there is chemical change connected with endosmosis. In placing, for instance, a solution of chloride of calcium upon the inside of the intestine of a racoon, while a solution of the oxalate of ammonia was made to occupy the other, after diffusion had taken place, crystals of various shapes were found deposited in the solution occupying the inside of the membrane, such as could not be formed when these solutions were placed in immediate contact.

Experiments with different membranes and with different substances were attended with similar results. Septa of dry membranes, and those composed of inorganic substances, were used. The diffusion of the solutions took place readily, but was not attended with crystaline deposits. But this, it is thought, does not prove that chemical action is absent in the process. It shows that this septa are insufficient to produce upon chemical substances passing through them a change of molecular arrangement.

As to the change of osmotic activity, it is found that a pressure of several atmospheres may prove insufficient to control or arrest it. And liquids will pass through pores which are imperceptible by the aid of the microscope.

If organic substance alone could induce or cause endosmosis to take place, we might with some propriety suspect that the action depended upon a vital principle, and dismiss the further consideration of the question with little hope of ever knowing anything respecting it. But it is found that porosity is the essential condition upon which the action depends, and that it will be readily induced by septa formed of inorganic substances.

With this brief consideration of osmotic force, we pass to notice muscular motion.

In the muscular system the great embodiment of animal force, with its various connections and relations to the bony framework of the body, we have a purely mechanical arrangement, capable of producing an almost infinite variety of motions, all of which are as obedient to physical laws as the motions of a machine, constructed of purely organic matter; but what causes these physical or mechanical motions as exhibited in a living being? What is the character of the antecedent force? To suppose that it is *vital*, or a force *sui generis*, is to suppose that two forces totally unlike each other have a reciprocal relation—a relation so intimate that the existence of one depends upon the existence of the other.

Such an idea is preposterous. If the force or motion that causes the flexion of the arm is vital, and the force or motion of the arm itself is *mechanical* or *not vital*, then that which is *vital* is transmuted or changed into that which is *not vital*. And if it can be shown that this mechanical or *non-vital* force of the arm can of itself induce muscular contraction, then we have the process reversed, a *non-vital* force turned back into a *vital*.

But can we suppose that such a condition or relation really exists? Must we not conclude that these forces which stand in the relation of cause and effect are either *vital* or *non-vital?* Or, in other words, that they are but different manifestations of a single force *or motion.*

That the muscles are endowed—constantly charged, as it were, with force ready to be liberated by some disturbing influence, needs no argument. This disturbing influence, especially of the higher order of animals, operates through the nerves, which are formed expressly for this office. Muscular force could not be intelligently appropriated without some connection between the muscles, or magazines of force, and the directing principle, which presides in majesty over all."

This influence, whatever it may be, which operates through the nerves, causing muscular contraction, must be regarded as a force, as being distinct from the *directing* or *governing principle*, which lies beyond, and which cannot be regarded as a force in the ordinary acceptation of the term.

That muscular contraction necessarily involves disentegration of tissue, is an admitted fact. The experiments Hulemboltz upon amputated muscles, in which motion was produced by electrical currents, places this question at rest.

Respecting the heart's action, it is shown that the nervous system exerts an *influence* only. It does not *cause* the motion. The single fact that pulsation is observed to commence in the embryo-heart, when its walls consist of ordinary cells, and before nervous structure is observed to exist in its own substance or in the body at large, is sufficient upon this point.

We must concede an amount of nutrient supply to this organ in proportion to the force expended, and the consequent disintegration. To reason otherwise would be to conclude that it persist indefinitely in producing force from nothing. According to Dr. Mayer the joint force of the ventricles for every twenty-four hours, would raise 303,000 pounds to the height of one foot; and if the heart had to furnish the matter necessary to its action, it would be consumed by oxydation in eight days.

We may readily conceive that where there is exalted nutrition in muscular tissue, and consequently much unison, comparatively slight influences would induce motion, or greatly modify it where it already existed.

This condition, we find, obtains with the heart. Slight mental emotions, for instance, are sufficient to influence it very considerably in force and rythm. And we find it further illustrated in the hearts of certain fish and reptiles. When this organ is removed from the body it may be excited to action, which will be maintained often for hours by very feeble stimulation.

All motion is attended with rythm, though the beats or repeats may occur at such remote intervals that memory may fail to connect them; or they may take place so rapidly that the eye, or even the ear, may not perceive them. Rythm is simply a repetition of motion.

It may require ages for the motions of some of the larger masses of matter in the universe to be repeated, while other motions, such as affect animate particles of matter, may be repeated in the smallest fraction of a second. Matter vibrating or repeating its motion 38,000 times per second, may be appreciated by an accurate ear, but an increase beyond this fails to effect the ear, much less the eye.

In molecular oscillation, we have the very essence, so to speak, of rythm. In a lecture by Prof. Tyndall, delivered before the university of Cambridge, May 16th, 1865, on Radiation, may be found a clear exposition of molecular oscillation, caused by ether waves set in motion by heat.

So far as it regards gaseous bodies it is shown that the atoms or molecules have certain definite rates of oscillation.

In conclusion, suppose it should be fully established, that what are called the vital forces are but the ordinary forces of nature; what have we gained? We shall only remark, that all the branches of medical science, especially physiology, pathology and therapeutics, must be rendered less obscure, and the science generally assume a definiteness hitherto unattained, and yet with all this advancement, we may be far from reaching the confines that separates between the knowable and unknowable.

MEDICAL SOCIETY OF VERMONT.

The Medical Society of Vermont held its semi-annual session at St. Alban's June 21st. There were present physicians from various parts of the State, and also delegates from the Medical Association of Northern New York. The Society convened at 11 A. M., and was called to order by Dr. S. Putnam, of Montpelier, President. The Minutes of the annual meeting were read by Dr. L. C. Butler, of Essex, Secretary.

The forenoon was occupied with a discussion upon *Chloral Hydrat*, and at the opening of the afternoon session a paper was read by Dr. Harvey Knight, of Georgetown, upon that subject. Dr. Knight gave its chemical composition, and its use as a remedial agent, in cases occurring in his own practice. He spoke particularly of the danger of its indiscriminate use by persons who do not understant its composition. The discussion which followed was interesting and instructive, showing some difference of opinion among members of the society in regard to its administration, and effects, but all concurring in the opinion that it is a medicine of great value, when properly administered, and of absolute purity.

Dr. S. Putnam presented in writing the details of a case of *sub acute menengetis*, in which the patient was able to be about till within a short time of his death, and in which the post-mortem examination revealed extensive disease of the meninges of

the brain, with softening of its substance. Dr. Welch, of Williston related a similar case.

The following persons were elected members of the society: LeRoy M. Brigham, of Stowe; Chas. S. Leach, of Highgate; B. G Hall, of East Fairfield, and R. K. Clark, of South Hero.

The subject of *Scarlatina* was then discussed with reference to its being contagious, and to the treatment proper to be pursued. Opinions varied in regard to its being contagious; in treatment, opinion more generally coincided.

Dr. Chandler, of St. Alban's, read a very interesting and able paper on *Preliminary Education for the Medical Profession.* The Dr. avocated extensive instruction in the Languages, and illustrated his ideas by reference to the history of individuals within his knowledge.

During the evening session the Vice President, Dr. A. J. Hyde, of Hardwich, delivered an address on the subject of *Fashion in Medicine.* The Doctor's address was full of good points and well received. It was referred to the Committee on Publication. The subject of the paper gave rise to an extended discussion, which was continued during a part of the forenoon of Thursday.

During the session of Thursday morning, the subject of *Apoplexy* was under discussion. The members of the society generally participated in it, giving history of cases in their practice. Blood-letting as a remedy in this disease was discussed pro and con, the general impression being made that while it should not be discarded yet it is generally of little value.

During the afternoon the subjects announced were, "What shall we do with our tubercular patients?" and of "Uterine Hemorrhage," in which nearly all the members of the society participated.

The society adjourned after a very pleasont and profitable session.

On Wednesday evening the members of the society were very pleasantly entertained by Dr. and Mrs. Fassett, at their residence, and the society gave a unanimous vote of thanks for their courtesy and friendship.

Drs. Chandler and Branch were invited to present to next meeting of the State Society some reminiscences and notices of the early practitioners of Franklin County.

CHEMUNG (N. Y.) COUNTY MEDICAL SOCIETY.

A quarterly meeting of the Chemung County Medical Society, was held in Elmira on Tuesday, June 20th, 1870, at half-past ten o'clock in the morning.

Present—Dr. George Dean, of Sullivanville, President, and Drs. I. F. Hart, Meisel, Velder, Abbott, Stanchfield, Squire, Wey, Chubbuck, and J M. Flood of Elmira, William H. Davis, of Horseheads, Woodward, of Big Flatts, Seaman and Beard, of Millport, Granger of Lawrenceville, Pa., Vorhees, of Daggett's Mills, Pa., and Turner, of Towanda, Pa.

In addition, Dr. Jackway, of Breesport, and Dr. Spaulding, of Baldwin, were present by invitation.

The report of the Secretary, Dr. I. F. Hart, was read and adopted.

Dr. Squire, chairman of a committee of this society to present the subject of a hospital in the city of Elmira, to the consideration of the profession and citizens generally, reported that an organization, under the laws of the State, had been effected, called The Elmira Hospital, composed of thirteen trustees, who had secured a desirable location for the purpose contemplated in the act of incorporation, and by whom the whole subject connected with so great a charity was being thoroughly considered.

On motion of Dr. Wey, a committee of three was appointed by the President to consider the propriety of changing the time of meeting of the society to the third Tuesday, in place of the second Tuesnay in June.

On motion of Dr. Squire, the committee was further empowered to consider the whole subject of amending and correcting the published constitution of the Society, to report at the next quarterly meeting.

The President named on such committee Drs. Wey, Chubbuck and Stanchfield.

The following officers were elected by ballot, for the ensuing year:

President—Dr. Frank B. Abbott.
Vice-President—Dr. Wm. H. Davis.
Secretary—Dr. I. F. Hart.
Treasurer—Dr. Wm. Woodward.
Censors—Drs. George Dean, J. K. Stanchfield, Louis Velder, Horace Seaman, H. S. Chubbuck.

Dr. Abbott read the particulars of two cases of Neuralgia of the Orbital branches of the fifth pair of nerves, which had their origin in a malarial cause and yielded to anti-periodic remedies.

Dr. Chubbuck concluded a report of a case of Concussion of the Brain, which was furnished in part at the March meeting. After lying in a totally insensible condition eleven days, the young man came to consciousness and made a complete recovery.

The question of treatment was discussed by Drs. Woodward, Chubbuck and Seaman, the latter relating a case of injury of the head by the fall of a stone upon a man who was engaged in digging a well, the particulars of which bore directly on the issue involved in the discussion.

Dr. I. F. Hart read the details of an instance of sub-acute inflammation of the knee-joint, of a strumous character, resulting in wasting of the muscles of the thigh and leg and diminished mobility of the affected part. The cause of the inflammatory attack was traced to deprivation of sleep, with increased and prolonged exercise by walking, in the course of a very engaging religious excitement.

Dr. Wey exhibited a case of *fungus hæmatodes*, in a middle-aged man, which springs in the form of a large tumor from the breast-

bone. Its growth is rapid, and no art or device of surgery can be brought in requisition to remove it or retard its fatal tendency. He also presented a case of *chronic eczema*, in a boy eleven years old, whose scalp, trunk, abdomen, back and legs are extensively occupied by the development of that inveterate disease.

Dr. Wey read a paper entitled "Cases Illustrating Peculiarity in the Prevailing Epidemic of Measles," which was reviewed and additional cases contributed by Drs. Woodward, Velder, Chubbuck, Davis, J. M. Flood and Abbott.

At this stage of the proceedings, Dr. Wey moved that Dr. James B. Murdoch, of Oswego, be invited to a seat with the members and take part in the proceedings of the Society.

Dr. Murdoch accepted the invitation with a few well-timed remarks.

Dr. Velder read the history of a case of Vulvo-cellulitis, which in its minutely detailed particulars of causation, revealed a graphic illustration of the difficulties which surround the consideration of the agitating question of the "*social evil.*"

Dr. Woodward read a carefully written paper, detailing the process of transplanting germs of sound skin, in two cases of chronic, indolent ulcers, which resulted in cicatrization.

This paper and the principle involved in the revived expedient of inoculating sound skin upon an ulcerated surface, was dwelt upon at length by Drs. Squire and Wey.

Dr. Dean, the retiring President, delivered an address, in which the fundamental truths of physiology were considered as the basis of medical learning, and a comparison was drawn to illustrate science pursued in the light of reason and experience, and science so-called, founded upon speculation and theory.

Dr. Turner related a case of accidental abortion at two months, followed by flooding, inflammation of the womb, and a succession of morbid changes, which revealed the amazing powers of nature in overcoming the effects of disease, and at the same time exhibited a test of knowledge and skill at the proper moment and in the right direction, to facilitate one of the great operations of the maternal function.

Dr. Chubbuck moved that in giving notice of the quarterly meetings of the Society, the Secretary be directed to add that advanced medical students are invited to be present.

Dr. Squire reported briefly the proceedings of the recent meeting of the Pennsylvania State Medical Society at Williamsport, which he attended in company with Dr. Chubbuck, a delegate from the Medical Society of the State of New York, and Dr. Wm. H. Davis.

Dr. I. F. Hart, Secretary, read a communication from the Tioga County Medical Society.

The President appointed Drs. Chubbuck, of Elmira, and Bailey, of Millport, essayists for the September meeting, whereupon the Society adjourned.

Editorial Department.

Periscope.

The Bichloride of Methylene.

In a letter to the *Lancet*, Mr. Rendle, of Guy's Hospital, says of this substance:—

The composition of the bichloride of methyline has not been found sufficiently uncertain by me to interfere practically with the physiological effects, and no dangerous symptoms have occurred in my practice. Doubtless Mr. Clover and Mr. Braine can show by experience that the nitrous oxide gas, properly given, is a very safe and efficient anæsthetic in certain cases, and this in spite of many strong theoretical reasons that have been advanced to prove its danger (I allude more particularly to the arguments of Dr. Richardson, published a year or two ago). Yet neither of these gentlemen will, I think, deny that some very alarming symptoms have followed its use, even by experienced administrators. But omitting these cases, the suitability of the gas in a certain class of cases does not disprove the equal or greater suitability of methylene in the majority of cases; nor ought those arguments against the use of methylene, which are either purely theoretical or only supported by a very limited experience in its administration, be allowed to outbalance the results of a more extensive experience, by which alone, as in the case of the gas, can its safety and suitability be proved. When properly administered, the bichloride of methylene is only exceptionally followed by nausea and sickness, and both of these have followed the use of the gas. As to the comparative portability of the two, your readers can judge when they find that the most compact form to which the gas and its necessarily complicated apparatus of iron bottle bags, tubes, valves, and air-tight face pieces has yet attained is about 16 by 7 by 6 inches, in all weighing from 7 lb. to 8 lb.; while the methylene, and its necessary apparatus of a small glass bottle, a thin leather face-piece and flannel bag, occupies a space

of 6 by 4 by 3 inches, and weighs a few ounces only, not to mention the greater simplicity of administration.

As regards general surgery, although my practice is perhaps not as large as that of some of my seniors, yet, by reason of my connection with one of the largest general hospitals, it has been sufficient to warrant me in saying that any one who will give an impartial trial to the bichloride of methylene will rarely use any other anæsthetic in any operation, long or short. I now use no other, except when especially requested by the patient or operator, and I find it gives complete satisfaction to all concerned. I have given it for operations lasting one hour, where the operator was able to commence in three minutes, and recovery was rapid, and not followed by sickness; also for operations lasting less than a minute, where all was finished and the patient sitting up within five minutes, without the slightest unpleasant sensation. I need scarcely add that this indicates its extensive utility.

No doubt a large number of people would prefer to inhale the gas, notwithstanding the almost alarming array of apparatus, as being the least unpleasant of known anæsthetics; yet I find, on referring to my notes, that the majority do not object to the inhalation of methylene. Many relate their sensations from the commencement as entirely pleasant; some who have inhaled the gas previously have not known that a different agent had been used until they were told, and have merely remarked on the difference in the apparatus; some to whom I have administered gas and methylene, and all who have previously taken chloroform, have preferred the methylene. On the other hand, many object to the pungency and slight momentary sensation of impending suffocation caused by methylene vapor. No doubt in those dental operations where it can be safely predicted that the time required will be short, the gas will be found least unpleasant and equally suitable; but taking into consideration the complexity of the apparatus required, the greater difficulty of administration, the greater bulk even in its most compact form, in which a certain risk of explosion of the bottle under high pressure is entailed, and the usual lividity and stertor; while with methylene the simplicity of apparatus and ease of administration, the small bulk, the absence of a heavy bottle under high pressure, the absence of lividity or stertor, the ease with which the effect can be prolonged when circumstances arise to require it, the suitability to all cases —in short ones being followed by a recovery almost as rapid and perfect as after the use of gas, in long ones diminishing very much the distressing after-symptoms usually attendent on the use of chloroform,—does not the balance of advantages lie on the side of the methylene?

The Local Treatment of Chronic Uterine Catarrh.

Dr. PARVIN says, in the Indianapolis *Journal of Medicine*:—One of the most obvious indications is to diminish uterine engorgement, for in the case of the catarrhal uterus there is an increased afflux of blood to the organ, and the organ is engorged either locally or generally. Of the local means for the relief of this engorgement, leeches, sponge tents, glycerine tampons, and copious injections of warm water may one or all become useful.

The next and most important indication is to act directly upon the sources of this increased or perverted secretion. Two obstacles intervene to hinder the carrying out of this indication: one of these is the discharge itself, which acts as a shield, protecting the part from the action of the remedy; the other is found in the anatomical character of the glands of the mucous membrane, penetrating it deeply, flexuous, and frequently bi-lobed. The former obstacle is to be removed by carefully wiping the surface with cotton, not once, but generally two or three times; the latter by the selection of those alterative or astringent agents, and using them in such a form that they will do no harm to the intervening structure, and penetrate most readily the hyper-secreting glands.

It must be obvious on anatomical grounds already mentioned, that solid or semi-solid applications are not as likely to be useful as liquid, while some of them can only be employed with the result of actually destroying the glandular follicles themselves, just as the indiscriminate and reckless use of bluestone and of lunar caustic has destroyed the mucous membrane in cases of granular eyelids, leaving hard whitish lines marking cicatricial tissue.

Conceding, then, that the liquid is the preferable form for applications to the cervical canal, or to the uterine cavity, the next question is as to the method of making these applications. That method which is the most obvious at first sight is by injections; and the acknowledged perils from throwing astringents or caustic solutions into the womb have been so often demonstrated that various syringes have been devised that would secure the certain escape externally of the fluid; indeed, we are threatened with as many syringes for this purpose, each one better than its immediate predecessor, that they will soon rival in number ovarian clamps or uterine speculum. Just as I have never introduced a fragment of lunar caustic into the uterine cavity, letting it remain there, a treatment so strongly advocated by Courty in obstinate catarrh, without deep regret, so I have never used liquid injections into that cavity, unless the cervical canal and the internal os were well dilated, without as great regret. It is exceedingly doubtful whether the benefits to be derived from intra-uterine injections of alterative or astringent solutions at all compensate for the difficulties encountered and

the dangers that may ensue. A simple and safer method of making applications to the lining membrane of the uterus is by Emmet's *Applicator*—a long, flat silver probe, its extremity wrapped with a thin layer of cotton. In most speculum examinations and applications to the uterus, the position most convenient, most easy and least repulsive to the patient, is upon the left side, the knees and chin drawn well toward each other, the left arm thrown behind, the right arm and the right limb somewhat in front. These details may seem somewhat superfluous—doubtless they are to most readers—but when in a recent edition of a widely circulated volume the *back* position is advocated, and when I know that very many practitioners direct it, having never tried the *side*, a word in favor of the latter and in description of it can readily be permitted, and may prove useful to those who are not too much wedded to old ways. The speculum which I prefer in these cases is Cusco's, the separation of its two blades better exposing the os and the lower portion of the cervical canal to view. Dr. Meadows' recently invented instrument is admirable in many instances when one desires to perform any purely surgical operation upon the cervix—few practitioners, once seeing and using this speculum, would be willing to part with it—but for the work in hand my preference is decidedly for the former.

The speculum introduced, the mucous or muco-purulent discharge removed, the cotton-covered extremity of the applicator is dipped into the solution selected, then passed into the cervical canal, or into the uterine cavity, in case that be the source of the discharge, and applied freely to the surface. Upon the withdrawal of the instrument, if the cotton be found coated abundantly with the discharge, remove the former, apply a fresh layer, and use the solution again.

The great majority of observers agree that in case of long continued uterine catarrh, the internal os is, as a rule, much larger than usual, so that the very disease facilitates the use of local agents for the cure. My own observation coincides with this view.

As to the solution that may be used, I believe that Churchill's tincture of iodine will be found in general the most useful of all therapeutic agents or preparations. That which I would rank next is carbolic acid dissolved in three or four parts of glycerine and water; then probably sulphate of zinc, ten to twenty grains in a fluid ounce of water.

In regard to repetition: Once in three or four days—desisting always at least three days prior to the recurrence of menstruation, and not resuming until at least three days after the flow has ceased.

Treatment of Ulcer of the Stomach.

Prof. ZIEMSEN, in a translation in the *Buffalo Med. and Surg. Journal*, says in relation to the treatment of this affection,: Let us put three questions: 1. What conditions are favorable to the formation of the ulcer? 2. What movements cause the enlargement and dangers of it? 3. What, at last, are the impediments of its spontaneous cure? I may answer to the first question, that we may often prevent the ulcer, provided that we are able to remove those casual conditions by early treatment of chlorosis and anemia, regulation of the diet, &c., &c. These are the points for a rational prophylasis of the ulcer. The two other questions are, practically, of more importance, for we are only rarely in a position to use these prophylactic measures; far more frequently we see the ulcer long after its formation, neglected and maltreated, and my answer is: The first and most important object is the neutralization of the acidity, in whatever stage you see the ulcer, in order to protect the young granulation from the influence of the acid and pepsin. For such a neutralization, a simple watery solution of Carb. of Soda, little concentrated, and in larger quantities in an empty or only partially filled stomach would be sufficient, provided this could be done continually, and this would make the assimilation of albuminous substances impossible, and gravely injure the general nutrition. Such a continuous neutralization is not necessary at all; once a day is sufficient, under the condition that at least once a day the sour contents of the stomach are completely emptied into the bowels, and for this purpose I commend the sulphate of soda, which powerfully excites the peristaltic motion of the stomach without irritating the mucous membrane and the ulcer, it promptly causes the evacuation of the stomach, and to a certain extent reduces or even prevents the sour fermentation of its contents. Common salt—Chloride of soda acts similarly, but far weaker as an anti-fermentative and anti-septic, and slightly stimulates the muscular membrane of the stomach and intestines; but this effect is, in most individuals quite sufficient. These three substances, sulph. of sod., carb. of sod., and chloride of sodium, are the principal constituents of the celebrated Carlsbad Spring Waters. I consider the permanent intensely sour quality of the stomach, caused, not by the ulcer, but by chronic Catarrh, as especially injurious. Dyspepsia, eructations and vomiting, pyrosis, the permanent sensibility and tympanitis in the epigastrium, the costiveness, emaciation and general anemia, are mostly caused by chronic catarrh. The mucous, produced in abnormal quantities, acting as ferment, causes a sour fermentation so much quicker, the less carbonhydrate the food contains—people in general have an aversion against meat and other food containing proteine, and such food is the more disposed to fermentation the longer it remains in the stomach, and in this latter condition, the obstinate delay of the chyme in the stomach deserves especial attention. It is a priori very probable, that this delay and the vomiting may be caused by a temporary mechanical obstruction or stenosis of the

pylorus; still we often find after death, the pylorus sufficiently pervious; in other cases the frequent changes of the symptoms, the temporary complete disappearance of all symptoms leading to a suspicion of a stricture of the pylorus, but mainly the thorough recovery of the patient, proves that there was only a temporary obstruction of the pylorus. We are therefore to conclude that this mechanical obstruction is caused by the catarrhal swelling of the mucous membrane of the pylorus, together with a spastic contraction of its sphincter, that the energy of the muscularity of the stomach decreases the longer the ulcer and catarrh continue, and that the contractions are not more than sufficient to open the closed sphincter. Kussmaul lately proved, by experiments with the stomach pump, that the sour fermenting contents of the stomach, in spite of frequent and copious vomiting, are never entirely emptied. If there exists a certain degree of paresis of the muscularis and of gastrectasia, this remaining small portion of fermenting chyme produces at once upon all the fermentative substances carried into the stomach the same change, so that this power of fermentation and the catarrh become permanent, and the ulcer is always under the corroding influence of sour chyme. The majority of patients are for a long time in this state before they seek medical advice.

You may give either the natural or artificial Carlsbad Spring Water, or the natural or artificial Carlsbad Salt in a more or less concentrated hot watery solution, to which latter I give the preference; the natural Carlsbad salt contains about 87 per cent. sulp. sod., about 13 per cent. carb. sod., and only a small quantity chlor. sod., (common salt.)

A few words about the diet: Your patients should avoid most of the vegetables, fruit, fat, sugar, beer; you will allow them roasted veal and chicken, beef tea, raw ham, wheaten bread, light French Claret, milk in any quantity, either alone or to prevent rapid fermentation, with the addition of a little carb. sod., buttermilk. I generally give, for about four weeks, in the morning, fasting, two large teaspoons of either the natural or artificial Carlsbad salt, dissolved in a quart of water, previously boiled and moderately cooled, and have the fourth part of this solution taken every quarter of an hour, so that one or two watery evacuations follow; during the drinking, or shortly after it, I increase, if necessary, and in course of time decrease the dose of salt, giving at last only one teaspoonful in the same quantity of water. In severe cardialgia, I give morphine, either subcutaneously or by mixing 2 grains with half an ounce of Aq. amygd. amar., and giving of this repeatedly ten to fifteen drops. I have never seen any benefit from nitrate of silver, and only very temporary, but no curative results from nitr. of Bismuth with opiates.

Let me say a few words about the treatment of hemorrhage and perforation: Hemorrhage, if it can be stopped at all, is treated the simplest and surest with cold—ice—externally and internally, perfect rest, and absolute abstinence from solid food and liquids; I don't advise you to use astringents at first, such as alum, perchl, iron, plumb., acet., they can never reach the bleeding vessels of the stomach if it is filled with coagulated blood, often increase the vomiting, and so are apt, by loosening the provisional thrombus in the contracted lumen of the vessel, to renew the bleeding. On the 2d or 3d day I allow iced alum whey, in small quantities, an injection if necessary, but never a physic, not even the mildest; milk, beef tea, wheaten bread, iced champagne. Perforation, especially for the purpose of euthanasia, and to quiet the movements of the stomach and intestines so as to check the *extravasation* of the contents of the stomach into the peritoneal cavity—almost always only a pious wish—requires opium in large doses subcutaneously or per anum. I use ice in bladders against peritonitis or tympanitis.

Effects of Alcohol.

We take the following from the "Scientific Record" in *Harper's Magazine* for July:—

The effects of alcohol have recently been tested in London by experiments upon a healthy soldier. The course of treatment was as follows: For the first six days no alcohol was given; for the next six days from one to eight ounces of alcohol were given in divided doses; for the next six days water alone; and then for three days twelve ounces of brandy, containing forty-eight per cent. of alcohol. The results are reported to be as follows: No appreciable difference was perceived in the weight during the course of the experiments, but the temperature of the body was slightly raised. The pulse was materially affected, rising from 77.5 beats per minute before taking the alcohol to 94.7 after the largest doses.

Estimating the normal daily work of the ventricles of the heart as equivalent to the lifting of 122 tons a foot, it was found that during the alcoholic period the heart was compelled to lift an excess of 15.8 tons, and during the last two days, of 24 tons. The conclusion arrived at was, that alcohol is utterly useless in health, and positively injurious in larger quantities than two ounces daily. There, however, seemed to be indicated an advantage in its use if employed in rousing a feeble appetite or exciting a feeble heart.

Treatment of Croup by Inhalation of Glycerine.

In the "Scientific Record" of *Harper's Magazine* for July we find the following:—

A German physician, Dr. Stehverger, recommends the treatment of croup by the inhalation of pure glycerine through one or other of the well-known forms of atomizing apparatus. He was led to try this remedy for croup from observing its good effects in cases of hoarseness and loss of voice. After

application the cough becomes more free and moist, and children are enabled to sleep almost immediately upon being relieved by the inhalation. It is, however, believed to be of importance to make use of the remedy early and frequently, as, if delayed, it may have no effect whatever. If the glycerine be pure, it may be used unmixed; if not, it should be diluted with a little water. The inhalations are repeated, according to the necessity of the case, at intervals of from half an hour to an hour and a half, and for about fifteen minutes at a time. The effect of the glycerine in this case is supposed to be due to the fact that the secretions of the mucous membrane are thereby increased, and tumefaction reduced.

Movable Kidney.

In *Virchow's Archive*, Dr. HERBER, of Hamberg, relates two cases of moveable kidney, in the first of which, that of a boy, 16 years of age, the affection had a distinctly traumatic origin. About three months after a severe fall on the back serious symptoms developed, which showed themselves chiefly in the form of extreme pain in the abdomen and great emaciation. The author supposes that in this case the cellular tissue around the kidney had become loosened by the fall, and had therefore allowed the kidney to leave its place, being confined only by the vessels and ureter. In the second case, in addition to the emaciation and pain, pyelitis supervened. Treatment in both cases was directed to the emaciation, for which the rather disgusting prescription of fresh ox blood was ordered. They were directed to attend at the slaughter-house at the proper time so as to obtain the blood warm from the animal, and the author remarks in quite a matter of fact way, that some patients prefer to drink it in the dark, and some use an opaque vessel. The author has observed very rapid improvement from this treatment both in these cases and in others of extreme emaciation. The pyelitis in the second case was treated by acetate of lead.

Poisoning by Carbolic Acid.

DR. GERRARD reports in the *Lancet* a case from Jamaica, in which a sailor was poisoned by carbolic acid. It appeared that the captain kept in a cupboard in his cabin two bottles similar in appearance, but one of them containing rum and the other carbolic acid. It is supposed that the deceased, searching for the rum, drank from the carbolic acid bottle instead, as it was found half-way out of the cupboard, but with the cork in it. When discovered, he was comatose, with contracted pupils and intermittent pulse, stertorous breathing, and frothing at the mouth. There was also a peculiar livid appearance about the eyelids, lips, and ears. The odor of carbolic acid was present. Medical aid was obtained, but death followed within three-quarters of an hour of the supposed time of his taking the poison. It was said that the deceased, whilst searching for liquor on a previous voyage, had swallowed some lamp-oil in mistake for rum.

Chloral in Traumatic Tetanus.

M. BENASSON relates a case of traumatic tetanus occurring in a lad 13 years of age, to whom he was called the third day after the appearance of the symptoms. He found him in a state of almost complete opisthotonos, and determined to try the effects of chloral, and by about the thirty-fifth day the patient had completely recovered. The entire quantity of chloral administered amounted to 180 grammes, commencing with 4 grammes in the twenty-four hours, which almost immediately procured him the sleep he had been so long utterly deprived of. The dose was gradually increased to 8 and 10 grammes in the twenty-four hours.

Reviews and Book Notices.

NOTES ON BOOKS.

—Dr. Axel Sigfrid Ulrich has a first-class Swedish movement cure in Bremen to judge from the *Jahres-Bericht* for 1870, which he sends us. He treats from one hundred and fifty to two hundred patients a year, with gratifying success.

—Whenever we see an article on the use of alcohol in medicine written or published by a temperance society, we expect it to be a distorted, perverted, and resolutely prejudiced piece of writing. Consequently we were agreeably surprised to find Dr. Ebenezer Alden's tract, "Medical Uses of Alcohol" (published by the Massachusetts Temperance Alliance) sufficiently sensible to admit that "alcohol, as a medicine, cannot, in our present state of knowledge, be wholly dispensed with in the practice of medicine." He inveighs against its excessive employment, and there he is undoubtedly right.

—A monthly, entitled "Western Medical Advance and Progress of Pharmacy. An Illustrated Quarterly Journal, edited by W. H. Lathrop, A. M., M. D., Detroit," has appeared. It appears to be an advertising sheet of Frederick Stearns, whose "Soapnia" and "sweet quinine" figure largely. *Quo usque tawdem!*

—Dr. Rollin R. Gregg, of Buffalo, N. Y. (whom we need hardly say, does not belong to *our* doxy) believes he has made a discovery

"scarcely second to any save Hahnemann's." It is that the only *radical* cure of all tumors, fatty degenerations, consumption, cancer and everything else "consists simply in healing the mucous membrane." (!). For particulars see his pamphlet, "The 'Fibrinous Crasis,' its cause a loss of Albumen from the Blood."

—"The *Medical Cosmos*, A monthly abstract of Medical Science and Art. George J. Zeigler, editor and proprietor" (Philadelphia, $1.00 a year) promises to be a useful little publication.

BOOK NOTICES.

A PRACTICAL TREATISE ON THE Diseases of Infancy and Childhood. By Thomas Hawkes Tanner, M. D., F. L. S., etc. Third American edition, from the last London edition, revised and enlarged by Alfred Meadows, M. D., Lond., etc. Philadelphia: Lindsay & Blakiston, 1871. 1 vol. cloth, 8vo., pp. 559.

The alarming mortality of the earlier years of life, to which we have so often directed attention in these pages, renders the subject of the diseases of children one of prime importance, and we always welcome another solid contribution to this branch of medicine. The adjective we have just employed is particularly applicable to the work before us. It presents compendiously and succinctly a very complete body of information.

The general plan may be briefly stated. It is divided into four parts. The first treats of the physiology and pathology of childhood, with chapters on hygiene, dentition, etc.; the second discusses general diseases, fevers, diathetic diseases, *etc.;* the third considers special diseases, under the classifications of the functions they derange; while the fourth embraces accidents, malformations, etc. The chapter on diseases of the skin has been written by Dr. Tilbury Fox, and that on the eye by Dr. R. B. Carter, while the editorship of Dr. Meadows has extended to a complete re-writing and re-arranging of the whole book.

We have been pleased with the attention given to *therapeutics* throughout the work, and we esteem the appendix of about three hundred well-selected formulæ, by no means the least valuable portion of it. Those who are addicted to the *practice* rather than the *theory* of medicine. will probably agree with us here.

A PHYSICIAN'S COUNSELS TO WOman, in Health and Disease. By Walter C. Taylor, A. M., M. D. Author of "Gynæcological Notes," etc. Springfield, Mass., W. J. Holland & Co., 1871. 1 vol. 8vo. Sold by subscription.

This is a work in the style of those of Chavasse and Napheys, conveying instruction on hygiene, and the general care of the health, to the female sex. It is carefully written, and contains a large store of useful instruction. In some portions the author follows too closely the writers we have just named to be awarded the praise of originality.

The last section treats on the prevention and home treatment of the diseases of women, and this, to our mind, is decidedly the most interesting part of the work. It is the only successful attempt we know of to explain in popular language the varieties and treatment of female complaints. The choice of language is excellent, being at once perspicuous, lucid and accurate. The directions will be approved by every physician, and though we are by no means in favor of "every man his own doctor," and still less of "every woman her own doctress," none will question the wisdom of affording to the weaker sex all the assistance possible to render them stronger and more able and more willing than they now are, to bear their heavy yet inevitable burdens.

News and Miscellany.

Dentistry in the United States.

The dental profession in the United States, it is understood, comprises 13,000 members, who earn an aggregate income of twenty-four millions of dollars. The annual expenditure for materials amounts to two million dollars, and for office rents to three million dollars, leaving nineteen million dollars as the net income of the profession. There are nine dental colleges in the United States, from which 1807 persons have graduated. The profession supports several dental periodicals, with an aggregate circulation of 12,900 copies. There are no dental colleges in the countries of Europe. Dentistry previous to the present century did not occupy the position of a profession, but its practitioners, it is said, were to a great extent quacks. In consequence of the greater skill of deniists of the present day, the tendency of the practice, it is stated, is to save the natural teeth and to avoid the necessity of inserting artificial teeth.

Colorado for Asthmatics.

Dr. F. B. Crane, of Detroit, where for thirty years he had suffered intensely from asthma, recently migrated to Colorado, where he soon experienced a decided relief, and, after a stay of three or four months, found himself entirely cured. He regards the pure, rarified atmosphere of that elevated, nonmalarious region as a positive antidote for asthma in all its forms.

MEDICAL AND SURGICAL REPORTER.

PHILADELPHIA, JULY 8, 1871.

S. W. BUTLER, M.D.,
D. G. BRINTON, M.D., } Editors.

☞ Medical Society and Clinical Reports, Notes and Observations, Foreign and Domestic Correspondence, News, etc., etc., of general medical interest, are respectfully solicited.

Articles of special interest, such especially as require original experimental research, analysis, or observation, will be liberally paid for.

☞ To insure publication, articles must be *practical, brief* as possible to do justice to the subject, and *carefully prepared*, so as to require but little revision.

☞ Subscribers are requested to forward to us copies of newspapers containing reports of Medical Society meetings, or other items of special medical interest.

We particularly value the practical experience of country pretitioners, many of whom possess a fund of information that rightfully belongs to the profession.

The Proprietor and Editors disclaim all responsibility for statements made over the names of correspondents.

THE NERVOUS FORCE.

Within the last two years we have several times called attention in the REPORTER to the narrow and insufficient views of those physiologists who, starting from a chemical theory of life, reach naturally the opinion that thought and mental phenomena generally are nothing more than a form of physical impression, a transmutation of the waves of light and sound. We have maintained that any such opinions are unworthy of maintenance, not because they conflict with metaphysical and religious views which many hold dear, but because they are far behind the actual position of the vanguard of physiologists.

Let us prove this last statement by the words, very recently uttered, of one whom we may, without fear of contradiction, assert to be one of the very foremost of living physiologists, and whose profound thoughts are at once based upon the most unbiased experimentation and expressed in language rarely equalled for eloquence, fire and lucidity; we refer to Dr. BENJAMIN W. RICHARDSON, of London.

In a late lecture on the nervous system, he propounds the theory of a gaseous or vaporous atmosphere of nervous matter as the one, after all, which best explains the multifarious phenomena of organic life and intellectual activity. And, though with a discretion which always marks the cautious man of science, he is far from pursuing this view to its logical sequence, and claiming for this distributed nervous force, stretching itself through space to the limits of the universe, and endowed throughout its utmost bounds with those powers which we denominate *mental;* and though he does not, in so many words, insist that when this theory of mental force is granted, it follows "as the day the night" that the ancient antagonism of matter and spirit is seen to be but a chimera and a phantom—a metaphysical monster, *cui lumen ademptum;* yet it is easy to see that such is the legitimate inferences from his premises.

How his views apply to man himself and the pathology of the nervous system, will appear from the following extract:—

"That which I would dwell upon at this present moment is the fact that even yet we are uncertain whether the original theory of a subtle or refined fluid charging the nervous matter, and *capable of being affected by simple pressure*, be not correct after all, and whether the study of the phenomena of electrical manifestations which Galvani mainly instituted, and which have since been pursued with so much untiring minuteness of industry, may not all be a series of independent facts, produced often by the experimenters themselves, or running only coincidently, when not produced, with the actual phenomena which Nature presents to the observer. It seems to me the most reasonable of propositions that the blood, in the decompositions to which it is subjected in the extreme parts of the organism—in those vital parts which lie, as I may say, on the banks of the stream of blood—should yield, as as our earlier masters taught, a true physical quality which the nervous system should have the power of claiming to itself, which should pervade the nervous matter, which should hold the whole nervous system in one connected bond, while at the same time, it should allow of the local independency of parts, and which should be subject to impression, not from one kind of impulse or *vis*, but from any to which it may be subjected—calorific, mechanical, electrical, chemical. It is, in short, essential to all theories of vibratory motions to presuppose the existence of a veritable ether, in which the more solid particles, atoms, or molecules

of matter are distributed, and by which, through vibration' the parts of matter are put into motion. Carry, then this same view to the animal body; suppose a mechanism such as the nervous system, flexible where needed, protected and fixed where needed, central, linear, peripheral, everywhere built upon blood vessel and blood current, and everywhere capable, where there is vessel and blood, of taking up from blood a product of the decomposition of blood, the resultant of chemical change; suppose this mechantsm persistent in the living body, and what do we endow the body with less than with a subtle spirit, which vibrates to every impulse, and which during life is dependent on the organism for its development; which is indeed, a spirit, made within the organism, by and through which the outer universe is received, is communicated, is felt, is known? To my view, there is reason in this theory. To my view, the nerves, without the essential physical quality with which they are charged in life, are as arteries without blood—the silent, emptied channels of what once was a living thing. To my view, nerves may practically bleed during life, as vessels do—bleed, not blood, but a derivative of blood. To my view, what commonly is called nervous exhaustion may be no metaphor of speech, but a physical reality, as difinite as that physical hemorrhage from blood vessel, to which, in effect, in symptoms, it is so near akin."

There will be found much food for reflection in this pregnant passage, both for those who are interested in the theory of mental action, and in the treatment of nervous diseases.

A CENSURABLE JOURNAL.

When, in a recent number of the REPORTER, we expressed our disbelief in the Association of medical Editors, requiring "censors" and "scrutineers;" we did not suppose that we should be shown so soon the need of such officers. But in the last number (June) of the *Richmond and Louisville Medical Journal*, the editor, DR. E. S. GAILLARD, so completely abandons all editorial propriety, good breeding, and self-respect by pouring out a flood of billingsgate against the President of the American Medical Association, Prof. DAVID W. YANDELL, M. D., that his journal deserves to be banished from reputable society, until it observes better manners.

It is generally believed that the exciting cause of this tirade is personal animosity, and the editor who takes advantage of his position, to indulge such a sentiment in the pages of his periodical stands very much in need of a censor and an unsparing one.

To crown this discreditable abuse of opportunity, the tirade was republished in one of the public secular papers of Louisville! And this from a man who is always ready to abuse without stint whoever infringes *his* views of decorum! It is time that the reformation begin at home.

Notes and Comments.

Professional Exminations.

The following were the questions in Surgical Anatomy and the Principles and Practice of Surgery submitted to the candidates for the diploma of Membership of the Royal College of Surgeons, London, at the last examination.—1. Describe the inguinal canal, its boundaries and relations to other structures, including hernial protrusions. 2. What are the causes and the immediate and remote consequences of sudden extravasation of urine? What treatment would you adopt in such a case? 3. Give the pathology of non-traumatic aneurism from its commencement to its termination. 4. Describe the operation known as Chopart's, and the relative position of the various parts cut through in this amputation. 5. How are schirrus and medullary cancer distinguished in the living subject? What organs does each form specially affect, and at what ages usually do they respectively occur? 6. By what form of accident is dislocation of the head of the femur backwards usually caused? Describe the two dislocations in this direction, the deformity existing in each, and the propor method of reducing them. The following were the questions on the Principles and Practice of Medicine, viz.:—1. Describe a case of tubercular meningitis in a child from the appearance of premonitory symptoms to the termination in death. 2. Give the symptoms of diabetes mellitus, with the methods of analyzing the urine; also the treatment by medicines and diet. 3. Write a prescription in full for hœmoptysis, gastrodynia, and dysentery; also a prescription for an aperient draught and a sleeping draught. There were fifty-four candidates, of which number five were rejected on the first day, and twelve on the second.

Portrait of Dr. Sayre.

In the REPORTER of April 15th was published the first of our series of articles on clinical teachers, and a portrait of Dr. LOUIS A. SAYRE, of New York. But it was, through misapprehension, so badly printed, that we re-issue the portrait in this number. Subscribers will please tear out the one in April 15th, and replace it by that in this number.

Correspondence.

Hydrate of Chloral.

EDITORS MEDICAL AND SURGICAL REPORTER: If the following is worthy of publication you may insert it in your valuable REPORTER.

May 1st was called in the afternoon to see Mr. R——, aged 69, a paralytic, who had lain for nearly four years with complete loss of muscular power of the right side. At the time I saw him, 4 o'clock P. M., he was suffering from severe cramping pains through the chest and across the abdomen, with somewhat of difficulty of respiration. I gave 15 grains of the Hydrate of Chloral, and left him the same quantity to be given in half an hour, providing he did not sleep. But in about fifteen minutes, while I was yet at a neighbor's house, I was hastily summoned back with the intelligence that my patient was dying. I found him in a perfeefly comatose condition, out of which I could not rouse him, with irregular and laborious action of the heart, breathing at intervals spasmodically, and then for about the same space of time ceasing altogether to breathe. I remained over an hour and left him in the same condition, promising to call again early the next morning, scarcely knowing whether I would find my patient alive or not. Next morning I *did* find him alive, and greatly to his delight relieved of all distressing symptoms. His wife informed me that he did not awake to consciousness till about midnight, when he gradually aroused himself as if awakening from a deep sleep. It was 4 o'clock P. M., when I gave him the dose. Now my object in writing this was to ask a few questions.

Why was it that 15 grains of chloral (the dose I ordinarily give) should produce such profound and alarming coma? Would the fact that the patient had eaten literally nothing since the night before, have anything to do with it? Is Hydrate of Chloral a poison? If so, what antidote have we for it? Is there any medicine that will counteract the effect of it? If I had known of any I should have certainly given it in this case.

A. SHAW, M. D.,
Cassville, N. J.

Notice.

During the month of July, Dr. Agnew will be in his office only on Mondays from 10 A. M. uutil 1 o'clock P. M.

QUERIES AND REPLIES.

Dr. G. F. L., Ind.—The climate of Minnesota is recommended for consumptives, on account of its uniform temperature in winter. We are not aware of any special claim it has as a summer residence. Portions of California, Oregon, and Washington, and also Nevada, are recommended by some for consumptives, on account of their mild, dry, pleasant, and equable temperature. We would be glad to have some facts from those sections on the subject.

Dr. G. M. G., Pa.—The postage on the REPORTER is *five cents* a quarter, *prepaid* at your office.

MARRIED.

BROWN—MURRAY—At the residence of the bride's father, near Mt. Olivet, Robertson county, Ky., June 7th, by the Rev. Mr. Briggs, Dr. James A. Brown, of Bridgeville, Ky., and Miss Lizzie Murray.

DODD—NEAL.—In Columbus City, Iowa, June 6th, Mr. H. W. Dodd and Miss Mollie Neal, daughter of Dr. B. G. Neal.

GAINES—OFFUTT.—At Jeffersonville, Indiana, June 12th, Mr. John S. Gaines and Miss Fannie Offut, daughter of Dr. Z. Offutt, both of Georgetown Kentucky.

GRAHAM—MORRISON.—By Rev. R. Brown, of New Hagerstown—May 31, Dr. Frederick A. Graham, of Hayesville, O., and Miss Sarah M. Morrison, of Leesburg, O.

PERRY—HOLBROOK—On the 30th of May, 1871, by the Rev. B. T. Noakes, at the residence of the bride's parents, in Elyria, Ohio, Dr. Edwin C. Perry and Miss Eliza P. Holbrook.

PIKE—LAWRENCE—By Rev. David A. Cunningham—In Philadelphia, May 18th, Dr. Charles E. Pike, of Maine, and Miss Sallie A. Lawrence, of Philadelphia.

PLANK—BEST—By Rev. John Junkin Francis—March 7th, near Clinton, Pa., Dr. William Plank, of Freeport, Pa., and Mrs. Jennie M. Best, of Kelley's Station, Pa.

VIRGIL—ROBINSON—June 5th, by the Rev. Wm. Clayton, Dr. Thomas Virgil, of Fort Wayne, and Mrs. Libbie Robinson, of Van Wert Ohio.

DIED.

BROSNAHAM—Dr. John Brosnaham, one of the oldest citizens of Pensacola, Florida, died in that city June 11th, at the age of 80 years.

CADIEUX—In Syracuse, N. Y., June 6th, Joseph Victor, only son and youngest child of Dr. J. N. Cadieux, aged 1 year, 3 months and 13 days.

CONNOLY—Suddenly, on Sunday, June 18, at their residence, 142 West Eleventh street, N. Y., Dr. J. J. Connelly and daughters Mary Agnes and Clara Regina Connelly.

CUSHING—In Huron, Ohio, June 9th, Lucy Winnifred, daughter of Dr. Cushing, aged 4 months.

MATHERS—At Hagerstown, Indiana, March 26th, 1871, of phthisis pulmonalis, Dr. J. J. Mathers, a graduate of Jefferson Medical College, class of 1868, aged 27.

PORTER—At the residence of his father, A. Porter, M. D., near Fairhaven, Ohio, June 7th, 1871, Alex. Porter.

WIGAND—At Green Springs, Ohio, June 7th, Dr. H. Wigand.